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Book Review

Identifying Behaviorism's Prototype: A Review of *Behaviorism: A Conceptual Reconstruction* by G. E. Zuriff[1]

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Behaviorism has been the whipping boy of psychology for the past twenty years. It continues to be caricatured as a simplistic S-R psychology in which the only permissible stimuli are physical energy packets, the only responses are muscle twitches, and their only mode of connection is reflexive elicitation. Not surprisingly, the prevailing view is that behaviorism has failed and has little to offer modern psychology except as a reminder of the excesses of the past. Reality is of course quite different. Behaviorism has never been a monolithic belief system but a collection of viewpoints often united by only the most slender of common threads. From Watson's (1913) declaration of behaviorism as a new approach to psychology to the present, behaviorists have warred among themselves with at least the intensity of their conflicts with nonbehaviorists. The result is that behaviorism has never been well defined in terms of any generally accepted essential features. The further result is that criticisms of "behaviorism" from outside are usually regarded as applicable to someone else's version, never one's own, so that little careful analysis of the merits and demerits of the major assumptions of the behavioristic position has occurred.

The present book is a valiant effort to bring order out of this chaos. Zuriff begins with the recognition that behaviorism is a family of beliefs rather than a particular set of defining features, and then sets as his task a delineation of its major tenets, along with the reasons that behaviorists have adopted them, and a detailed exposition of the many criticisms of those assumptions. He then attempts to assess the validity of those criticisms and to pass a fair judgment about whether the behaviorists, or their critics, are closer to the truth. The discussion is wide-ranging and covers many of the specific issues that have led so many antagonists of behaviorism to dismiss it as simplistic. As might be expected, given Zuriff's own identification with behaviorism, he does not generally agree with those criticisms. And as also might be expected by those familiar with his philosophical acumen, he provides detailed counterarguments that show much of the criticism to be ill-founded. Proponents of behaviorism are thus likely to find his analysis extremely useful, both as an antidote to the vituperation levied in the direction of behaviorism and as an opportunity to sharpen their own thinking about what is, and is not, a defining feature of their own philosophical positions.

The format of the book is a division into three sections. The first is concerned with the behavioristic criteria for what is an acceptable data base and how observations should be used to build theoretical constructions that go beyond the data. The second section considers the dimensions of behavior itself, including the relation between behaviorism and "S-R" psychology, how the problems of purpose and thought are to be incorporated, and how a behaviorism liberated from reflexology can answer the cognitivist claim

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that the large contribution of "structural" factors requires the postulation of internal information-processing dynamics. Finally, the third section deals with traditional problems in the philosophy of mind, including the concept of will (or "agency"), private awareness, how various other "mentalistic" concepts are to be interpreted within a behavioral framework, and the philosophical foundations of behavioral epistemology. The topics covered are similar to those appearing in the journal, *Behaviorism,* and it is clearly to a similar audience that Zuriff's book will have most appeal. In general, those readers most concerned with philosophical issues will find the book of greater interest than will those with more empirical concerns, although the first two sections contain considerable material that will be of interest to both.

For whatever audience, Zuriff's analysis is often fresh and extremely insightful. Among the many sections that are particularly illuminating (and original) are his answer to the often-repeated Kuhnian doctrine that a theory-free observation language is impossible, his analysis of why behaviorists should not be so concerned with restricting their specifications of stimuli and responses to "physical" dimensions, his analysis of the different meanings of the concept of thinking and their implications for "cognitive" behavior therapy, his interpretation of the status of first-person reports of private events, and his analysis of how the behaviorist epistemology flows naturally from the American philosophical tradition of pragmatism. Equally incisive are his treatment of the concept of agency and his analysis of the various cognitivist criticisms such as Chomsky's that show them, to the extent that they have any substance, really to be empirical issues quite orthogonal to philosophical disagreements. The former of these (which is published in more condensed form in a journal article: Zuriff, 1975) should be required reading for anyone still confused by the apparent contradiction between the philosophical determinism inherent in behaviorism and the phenomenology of agency in one's own private experience; the latter should be required reading for any cognitivist who has an interest in understanding the real differences between behavioral and cognitive psychology. These examples by no means exhaust the many analyses that are stimulating and worth pondering, but rather provide a sample of the richness and diversity of the topics addressed by Zuriff. I know of no other book that has a similar diversity with the type of penetrating analysis that is needed to convey to nonbehaviorists the complexity and subtlety of behaviorist theory.

Despite the many virtues of the book, many contemporary behaviorists primarily interested in the study and application of behavior principles (e.g., those who read this journal) will, I suspect, find it perplexing, if not disappointing. The reason is that Zuriff has chosen not to defend any particular variety of behaviorism but instead to treat the collection of behaviorists, including Tolman, Hull, Watson, and Skinner, as belonging to a common family tree, with the task being to delineate the main branches of the tree and decide which is in need of pruning. The result is that much is encompassed that many current radical behaviorists (i.e., Skinnerians) will probably consider as part of an enemy camp. Zuriff's comparison of Hull and Skinner at various points of the book is especially noteworthy in this regard, since he argues that their differences are not nearly as fundamental as Skinnerians tend to believe. Some surprising results of this analysis include (1) Skinner is much closer to an "S-R" analysis than commonly believed, if what is meant by an S-R analysis includes functionally defined stimuli and responses; (2) Skinner's concept of private events is not fundamentally different from Hull's notion of r_g-s_g; (3) Skinner's most well-known contrast with Hull—the disagreement about the role of formal theorizing—reflects not some fundamental difference but simply different views on what is the most pragmatic strategy for psychology.

Zuriff's analyses leading to these conclusions are provocative and certainly instructive for behaviorists prone to "prot-

estantize" into different denominations. The analysis does not, however, capture what many perceive to be real differences. Many modern cognitive psychologists are in fact intellectual descendents of the Hullian approach and radical behaviorists often view them as a common enemy. Their common feature is a brand of psychological theorizing consisting of the postulation of internal mechanisms only indirectly susceptible to empirical test. In both cases, this theorizing results from a commitment to what Zuriff calls the "bead" theory of causation, which holds that an adequate account must include a specification of the immediately prior events responsible for each bit of behavior. The only difference is that Hull believed the underlying mechanisms to have behavioral dimensions (but not always: e.g., the concept of "behavioral oscillation"), while modern cognitivists have borrowed their mechanisms from the metaphors of computer science. Yet because Skinner and Hull share the notion that postulated internal events should have behavioral dimensions and be closely linked to empirical observations, Zuriff classes them together in common opposition to the cognitive movement. I agree with Zuriff that differing attitudes about theoretical constructs are not a critical basis for differentiating behaviorists. But regardless of the wisdom of his analysis, the problem is that the reader will gain no appreciation of why the role of theoretical constructs (and the objection to their use) has loomed so large in the thinking of contemporary behaviorists. Certainly a more detailed treatment of the issue is in order, if for no other reason to show contemporary behaviorists that they are tilting at windmills.

A second feature of Zuriff's analysis that will cause many readers difficulty is its general lack of empirical content. Zuriff cannot fairly be faulted on this ground since his aim is to provide a conceptual analysis of behaviorism, not an assessment of its empirical success or failure. However, his approach occasionally tends to obscure differences that others have regarded to have substantial empirical substance. For example, perhaps the most diagnostic difference among behaviorists is their commitment to "S-S" vs. "S-R" learning theories. The critical difference between them has been that S-S theories have conceptualized the animal as learning associations between environmental events (or between its responses and environmental events) with no direct translation of this knowledge into behavior, while S-R theories have included a performance rule in the principle of learning itself. Zuriff is quite correct that much of the substance of this disagreement disappears if S-S theories incorporate explicit performance rules and the concepts of stimulus and response are liberalized to be functionally defined categories (thus including Skinner among S-R theorists). But considerable empirical substance does remain. The different approaches have had very different conceptions of the status of reinforcement as a determinant of behavior. S-S theories have included reinforcement as part of what is learned about (i.e., as one term in an associative relation, either between stimulus and reinforcer or between response and reinforcer), while S-R theories have viewed reinforcement as a necessary ingredient for learning the S-R connection but without itself being involved in the association (or in Skinner's case, as necessary for increasing the response strength cued by the discriminative properties of the stimuli). The issue is not merely scholastic, because recent research has provided new data that are directly relevant. These experiments typically have trained separate responses using different reinforcers for each response and then independently (with the responses no longer available) devalued one of the reinforcers. The subject is then returned to the situation with both responses freely available but during extinction. The results have been that only the response that led to the particular "devalued" reinforcer in the past has a decrease in response strength. The response specificity of the effect thus strongly suggests that direct response-reinforcer associations are involved (see, for example, Colwill & Rescorla, 1985).

This finding is especially important because it appears to challenge the traditional behavioral analysis of "purposive" behavior, which Zuriff reiterates in the present book. Accordingly, the appearance that animals are goal-seeking in their behavior is to be explained by the past consequences of their behavior. For example, an animal appears to be searching for food not because the animal is aware that food is in the present environment but because search behavior has led to food in the past. This explanatory tactic thus allows the behavioristic position to avoid teleology. In more specific terms, the occurrence of behavior can be interpreted as the result of "response strength" being created by past response-reinforcer pairings, without an appeal to internal "goal-images" guiding the animals' behavior. But the demonstration that specific responses can be changed powerfully by altering the value of goal objects associated with that behavior, quite independently of any manipulations of the behavior itself, suggests strongly that the usual interpretation is incomplete. That is, the effect of experience cannot be captured solely in terms of increasing or decreasing response strength, because future behavior can be altered independently of changes in the response contingencies experienced by the animal. The issue is of course similar to that addressed years ago by studies of "latent learning," but goes beyond those earlier studies because recent evidence has come from experimental designs that preclude most of the hypothetical mechanisms invoked by S-R theorists to prevent "knowledge" about the actual response-reinforcer relationship from being considered part of what the animal actually learned. This is not the place to attempt any further explication of the issue (see Colwill and Rescorla, in press, for a more extensive discussion). Its discussion merely illustrates that at least some of the issues that Zuriff treats as conceptual have important empirical components essential to any comlete analysis.

It is obviously unfair to criticize Zuriff for empirical omissions when he set as his task the clarification of the defining features of behaviorism as a philosophy and an analysis of which of those features are worth preserving. Thus, it is of fundamental interest to consider what those attributes actually are. The book unfortunately does not include a summary chapter (although Zuriff does include a summary of individual chapters), so the following is this reviewer's assessment. Accordingly, the defining features of a new behaviorism shorn of its deadwood include the following:

1. The primary assertion is that psychology should be a natural science. This entails that any admissable data must stand up to the criterion of intersubjective agreement, which excludes self-reports of private events except in those cases in which we can be confident that the subject's self-report has been constrained strongly by linguistic conventions (e.g., where there have been salient behavioral manifestations of private events so that all members of the verbal community have learned to use the verbal labels in a well-defined manner).

2. The terms for a behavioral analysis (stimulus and response) are not restricted to those events that can be specified in the measurement dimensions of physics but include anything subject to the criterion of intersubjective agreement. Adherent to "S-R" psychology means nothing more than the belief that behavior is a lawful function of environmental (external) events. The stimulus and response categories actually used will be determined by the criterion that their use yields functional relations that are "orderly."

3. The phenomenology of agency (or volition) is not contradictory to behavioristic determinism; it is instead only a different level of analysis. The agent of an action is simply the locus where particular environmental influences from the past come together to produce a behavioral effect.

4. The commitment to behavioral analysis is not based on an acceptance of a materialistic metaphysics, but rather is the natural result of pragmatism as the criterion for truth (i.e., the truth value of

a statement is determined by whether it allows useful control of the environment).

5. The apparent fact that behavior is often "intensional" is incorporated into a behavioral analysis by the effects of the organism's history in producing a disposition to respond with respect to a particular goal object. The actual mechanisms proposed to account for such dispositions vary for different behaviorists, ranging from the effects of previous reinforcement contingencies to internal stimulus-response chains (e.g., "anticipatory goal reactions").

6. The use of theoretical constructs and postulates is determined on pragmatic grounds and not by some overarching principle of proper scientific conduct. Furthermore, the relation of constructs to the data language cannot be restricted by operational definitions but is ultimately limited only by whether their use advances the science. Parsimony in the use of such theoretical constructs is advocated, however, and any postulated unobservable events are assumed to have the same dimensions as observable stimuli and responses.

7. Complex behavior that appears to rely on underlying "information-processing" mechanisms can be understood as involving different kinds of response classes. The fact that organisms "generalize" to novel situations from a finite set of learning experiences (e.g., the learning of grammar) is simply evidence that the response classes have complex (relational) dimensions that remain to be discovered.

8. Private events, such as thinking, feelings, et cetera, either are considered as dispositions to respond under particular environmental conditions, or are regarded as covert stimuli and responses having the same dimensions as observable stimuli and responses. In neither case do they require the postulation of a different realm of "mental" events.

These attributes are not exhaustive, as a number of subsidiary principles could be included as well—but they are instructive because of their lack of radical character. With the possible exceptions of attributes #7 and #8, and the last sentence of #6, all are the direct consequence of the starting assumption that psychology should be a natural science. There are, of course, many people who do not accept the determinism inherent in that assumption, but they obviously are not the intended audience for the present book. For the remainder of us, what is surprising is that behaviorism is not some revolutionary perspective on human nature after all, but a rather benign set of assumptions about how a natural-science analysis should proceed.

So why then has behaviorism been the object of such scorn annd derision? One answer is that its enemies don't understand it and thus truly believe that it is nothing more than S-R reflexology. But more than that is clearly involved. The problem is that behaviorism is identified not merely as a conceptual position but also with particular empirically-based beliefs. Zuriff touches on some of these beliefs in his description of how behaviorists "interpret" such "mental" phenomona as thinking, but other substantive claims are even more central to the identification of behaviorism in the psychological community. The concepts of conditioning and reinforcement are the most obvious, since behaviorists have differed from other pychologists in proposing that such concepts can provide an adequate explanatory framework for all behavior even while disagreeing among themselves about the true nature of the conditioning concepts. The historical and contemporary development of behaviorism is inextricably intertwined with particular theoretical claims about the nature of behavior. Indeed, one could make a strong case that the present distaste for behaviorism pervasive in the larger psychological community has little to do with its conceptual foundations but rather reflects the perceived inadequacy of the particular explanatory mechanisms proposed by behaviorists to account for complex human behavior. A convincing argument in favor of a behavioral approach, therefore, inevitably must in-

clude a defense of those explanatory mechanisms in terms of the empirical findings they are designed to explain.

This in no way diminishes the value of Zuriff's magnificent effort. His book does provide a clarification of what behaviorism is, and more importantly, what it is not. Anyone reading it will appreciate the sophistication of contemporary behaviorism and be cured of the misguided polemics so often directed toward behaviorism in the past. His effort should contribute greatly to returning the merits of behaviorism to the realm of dispassionate intellectual discussion, and for that both the proponents and opponents of behaviorism should be grateful.

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